REMARKS

The present invention relates to a process for the production of a rigid polyurethane foam in which an isocyanate is reacted with an isocyanate-reactive composition. (Claims 5-11) The isocyanate-reactive composition includes a polyether polyol and/or a polyester polyol which is poorly compatible with cyclopentane, cyclopentane, water, a surfactant and a catalyst. A key feature of this process is the use of a dispersion of cyclopentane in the isocyanate-reactive composition.

The present invention also relates to an apparatus for dispersing the cyclopentane blowing agent in the isocyanate-reactive composition. (Claims 12-14) This apparatus includes a polyol tank and a high pressure circulating line in which a static mixer is present.

Claims 5-11 remain rejected under 35 U.S.C. § 102(b) as being anticipated by DE 19,708,570. Applicants continue to respectfully traverse this rejection.

DE 19,708,570 (translation previously supplied to the Patent Office) discloses a process for the production of foam materials containing polyisocyanate polyaddition products using a foaming agent which includes a C_3 or C_4 ring.

Applicants' claimed invention requires cyclopentane. Cyclopentane **does not include** a C_3 or C_4 ring. (See attached copy of page 2783, entry #2746 for cyclopentane taken from The Merck Index, 11th Edition.)

DE 19,708,570 does not therefore disclose Applicants' claimed invention in the manner necessary to support a proper rejection under 35 U.S.C. § 102(b).

Withdrawal of this rejection is therefore requested.

Claims 5-11 also remain rejected under 35 U.S.C. § 102(b) as being anticipated by Hickey et al (U.S. 6,359,022). Applicants continue to traverse this rejection.

Hickey et al discloses aromatic polyester polyols which are compatible with pentane and resin blends having increased phase stability and lower viscosity which do not require nonionic surfactants.

Applicants' invention requires a polyol which has "poor compatibility" with cyclopentane. That is, the polyols required in Applicants' invention are those which Hickey et al teaches to be unsuitable for use in the blends disclosed in that reference.

Applicants' invention is therefore contrary to the teachings of the Hickey et al reference. An invention which is contrary to the teachings of a reference is clearly not disclosed to one skilled in the art by that reference.

Applicants' invention which requires either a polyester polyol which is **not** compatible with the required cyclopentane blowing agent (contrary to the teachings of Hickey et al) and/or a polyether polyol which is incompatible with the required cyclopentane blowing agent (a material not disclosed or required by Hickey et al) is not therefore anticipated by the teachings of Hickey et al.

Withdrawal of this rejection is therefore requested.

It is stated in the Office Action that this rejection was being maintained because a reference may anticipate a composition of matter invention even though the reference indicates that the composition is not preferred or even if it is unsatisfactory for the intended purpose and In re Nehrenberg, 126 USPQ 383 was cited as support. (at page 3, lines 10-13)

Applicants would note that Claims 5-11 are directed to a **process** for preparing a rigid polyurethane foam, not to the foams produced by that process. In re Nehrenberg, *supra* is not therefore pertinent to the present case.

Claims 12-14 remain rejected under 35 U.S.C. § 102(b) as being anticipated by Barth et al (U.S. 4,275,172). Applicants continue to traverse this rejection.

Barth et al discloses frothable thermosetting polyurethane-forming compositions. This reference is cited for its disclosure of an apparatus for blending reactive mixtures in polyurethane preparations.

Applicants are not, however, claiming an apparatus for blending isocyanate and polyol components of the type disclosed by Barth et al. Applicants are claiming an apparatus in which a polyol dispersion containing cyclopentane is produced. The polyol and cyclopentane are not being reacted. The cyclopentane is being dispersed in the polyol.

The polyol tanks **29** and **30** shown in Figure 1 of Barth et al do not have the high pressure circulating line in which a static mixer is present that is requird in Applicants' claimed invention.

Barth et al does not therefore teach Applicants' apparatus claimed in Claims 12-14 in the manner necessary to support a rejection under 35 U.S.C. § 102(b).

It is stated in the Office Action that:

> However, the reference as a whole teaches a static mixer to be in the line from the polyol feed tank to the reaction mold, and the system is under pressure. The disclosure is maintained from the position of patentability to anticipate the apparatus defined by applicants claims without further limiting definition of the "high pressure circulating line" being provided in the claims. At page 4, lines 1-5 of the Office Action

Applicants would point out that the **only** static mixer disclosed by Barth et al is mixer **86**. Static mixer **86** is positioned between catalyst injector **76** and froth applicator **87**. Line **82** which feeds into catalyst injector **76** is the catalyst feed line. Line **75** which also feed into catalyst injector **76** is the **urethane** froth line.

Applicants' claimed device requires a static mixer in the high pressure circulating line for the polyol - **not** for a urethane froth as in the Barth et al reference.

Applicants' claims do therefore clearly define an apparatus which is not disclosed by the Barth et al reference.

Withdrawal of this rejection is therefore requested.

In view of the above remarks, reconsideration and allowance of Claims 5-14 are respectfully requested.

Respectfully submitted,

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chloride, $C_5H_{10}N.HCl$. crystals, mp 113-115° (base 86°, n_D^{25} 1.4500). Bitter taste. Freely sol in water. CAT: Adrenergic (vasoconstrictor); nasal decon-

Cyclopentane. Pentamethylene. C_5H_{10}; mol wt C 85.63%, H 14.37%. Occurs in petroleum. Found ther fractions. Prepd by cracking cyclohexane in the of alumina at high temps and pressure: Haensel, Ind. Eng. Chem. 35, 632 (1943); by reduction of ntadiene: David et al., Bull. Soc. Chim. France [5] (1944).

e, flammable liq. mp −94.4°. bp 49.3°. d_4^{25} 0.7460. s: Insol in water. Miscible with other hydrocarbon alcohol, ether. Lethal concn for mice in air: 38,000 Handbook of Toxicology vol. 1, W. S. Spector, Ed. Philadelphia, 1956) pp 330-331.

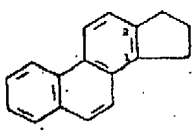
Cyclopentanol. Cyclopentyl alcohol; hydroxycy- ne. $C_5H_{10}O$; mol wt 86.13. C 69.72%, H 11.70%, O Prepd by modified Meerwein-Pondorf-Verley of cyclopentanone in the presence of aluminum oxide and sodium hydroxide: Truett, Moulton, J. Am. Soc. 73, 5913 (1951); by catalytic hydrogenation cyclopentanone with copper chromite at 150° and Kösl, Ultée, Rec. Trav. Chim. 69, 1576 (1950); by hydrogenation of cyclopentanone with platinum platinum black at 2-3 atm: Noller, Adams, J. Soc. 48, 1084 (1926); by hydration of cyclopen- H_2SO_4: Hepp, U.S. pat. 2,414,646 (1947 to Phil-); by reduction of cyclopentanone with $LiAlH_4$ in room temp: Nystrom, Brown, J. Am. Chem. Soc. (1947).

odor of amyl alcohol. d_4^{20} 0.96253; d_4^{15} 0.95078; d_4^{25} 0.93908. mp −19°. bp 140.85°. Flash pt 124°F. 512; n_D^{20} 1.4520. Sparingly sol in water. Sol in etha-

Cyclopentanone. Ketocyclopentane; ketopenta- ene, adipic ketone. C_5H_8O; mol wt 84.11. C 71.39%, O 19.02%. Prepd by heating adipic acid to 285- the presence of barium hydroxide, distilling, extract- ether and fractionating: Thorpe, Kon, Org. Syn. I, 192 (2nd ed., 1941).

id. Agreeable odor, somewhat like peppermint. d_4^{15} mp −58.2°. bp_{750} 130.6°; bp_{10} 23-24°. Flash pt n_D^{25} 1.4366. Slightly sol in water. Miscible with alc. Polymerizes easily, esp in presence of acids.

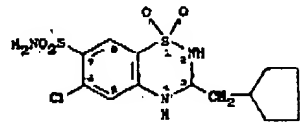
1,2-Cyclopentenophenanthrene. $C_{17}H_{14}$; mol wt C 93.53%, H 6.47%. Prepn: Ruzicka et al., Helv. Acta 16, 838 (1933). cf. Kon, J. Chem. Soc. 1933, Cook, Hewett, Chem. & Ind. (London) 52, 451 (1933); orbe, Robinson, J. Chem. Soc. 1936, 763; Bachmann, d, J. Am. Chem. Soc. 59, 2207 (1937).



dles from alc or petr ether, mp 135-136°. Absorption spectrum: Mayneord, Roe, Proc. Roy. Soc. London A152, 299 (1935).

Picrate. $C_{23}H_{17}N_3O_7$, orange needles from benzene, mp 133-134°.

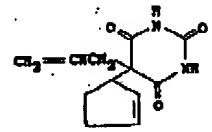
2750. Cyclopenthiazide. *6-Chloro-3-(cyclopentylmethyl)-3,4-dihydro-2H-1,2,4-benzothiadiazine-7-sulfonamide 1,1-dioxide*; 6-chloro-3-cyclopentylmethyl-3,4-dihydro-7-sulfamoyl-2*H*-1,2,4-benzothiadiazine 1,1-dioxide; 3-cyclopentylmethyl-6-chloro-7-sulfamyl-3,4-dihydro-1,2,4-benzothiadiazine 1,1-dioxide; cyclomethiazide; taiklometiazid; Su 8341; Navidrex; Navidrix; Salimid. $C_{13}H_{18}ClN_3O_4S_2$; mol wt 379.89. C 41.10%, H 4.78%, Cl 9.33%, N 11.06%, O 16.85%, S 16.88%. Prepn: Whitehead et al., J. Org. Chem. 26, 2814 (1961); Belg. pat. 587,225 (1960 to Ciba). Pharmacology: Barrett et al., Arch. Int. Pharmacodyn. 131, 325 (1961).



Crystals from dil alc, mp 230°. LD_{50} i.v. in rats, mice: 142, 232 mg/kg.

THERAP CAT: Antihypertensive.

2751. Cyclopentobarbital. *5-(2-Cyclopenten-1-yl)-5-(2-propenyl)-2,4,6(1H,3H,5H)-pyrimidinetrione; 5-allyl-5-(2-cyclopenten-1-yl)barbituric acid*; Cyclopal. $C_{13}H_{16}N_2O_3$; mol wt 234.25. C 61.53%, H 6.02%, N 11.96%, O 20.49%. Prepd by condensing the ethyl ester of cyclopentenylmalonic acid with urea: Compagnie de Bethune: Ger. pat. 589,947 (1930), Frdl. 19, 1198; Brit. pat. 349,455; Fr. pat. 38,680.



Crystals, mp 139-140°. Bitter taste. Slightly sol in cold water; moderately sol in hot water. Freely sol in alcohol, organic solvents.

Sodium salt, $C_{12}H_{13}N_2NaO_3$, *Cyclopal Sodium*. White powder, very sol in water.

Caution: May be habit forming. This is a controlled substance (depressant) listed in the U.S. Code of Federal Regulations, Title 21 Parts 329.1 and 1308.13 (1987).

THERAP CAT: Sedative, hypnotic.

2752. Cyclopentolate. *α-(1-Hydroxycyclopentyl)benzeneacetic acid 2-(dimethylamino)ethyl ester; 1-hydroxy-α-phenylcyclopentaneacetic acid 2-(dimethylamino)ethyl ester*; 2-dimethylaminoethyl 1-hydroxy-α-phenylcyclopentaneacetate; β-dimethylaminoethyl (1-hydroxycyclopentyl)phenylacetate; 2-phenyl-2-(1-hydroxycyclopentyl)ethanoic acid, β-(dimethylamino)ethyl ester. $C_{17}H_{25}NO_3$; mol wt 291.38. C 70.07%, H 8.65%, N 4.81%, O 16.47%. Ophthalmic anticholinergic. Prepn: Treves, U.S. pat. 2,554,511 (1951 to Schieffelin).

Hydrochloride, $C_{17}H_{26}ClNO_3$, *Ak-Pentolate, Mydplegic, Cyclogyl, Mydrilate, Zyklolat*. Crystals from ethyl acetate, mp 137-141°. pH of 1% aq soln: 5.0-5.4. Freely sol in water, alcohol. Practically insol in ether.

THERAP CAT: Mydriatic.

2753. Cyclophosphamide. *N,N-Bis(2-chloroethyl)tetra-*